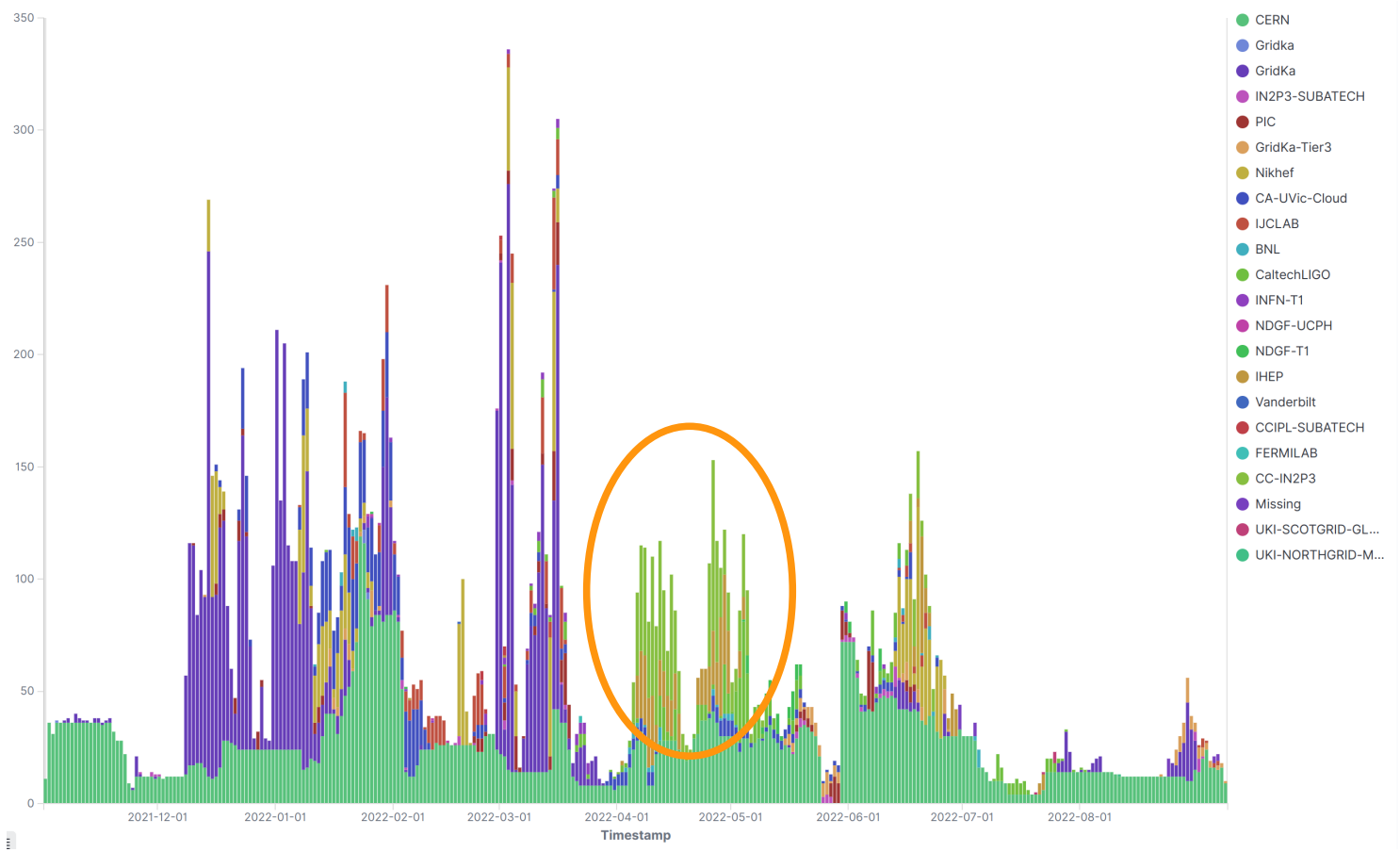
Centre de Calcul
de l'Institut National de Physique Nucléaire
et de Physique des Particules

IN2P3-CC feedback

sep 2022 – HEPscore Workshop

CC-IN2P3's participation



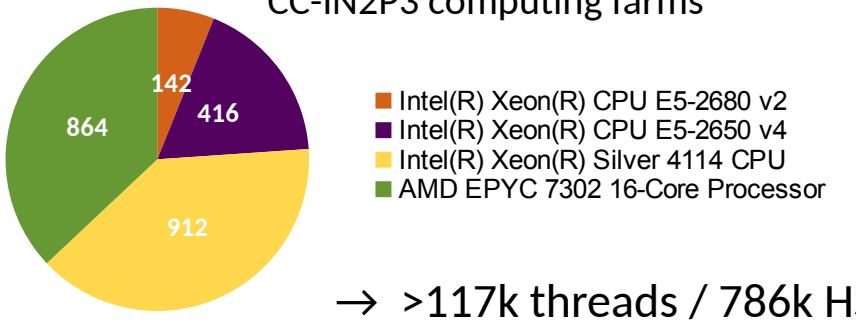
feb '22 : HEPscore Deployment Taskforce requests for sites to help collecting CPUs results

12x different hardware configurations

- 4x production nodes
- 8x benchmarking (4x Icelake, 4x Milan)

→ >800 measures

CC-IN2P3 computing farms



→ >117k threads / 786k HS06

Executing the suite

Code & deployment

- Workload deployment made up of curl, tar, wheels & python virtual envs. Rpm packaging would be a plus.
- Lack of configuration files and/or options for variables like site, publication, message bus config, passes count, payload configuration…
- The virtualenv build lacks a pip upgrade (and fails the DB12 bench nowadays).

Execution

- The payload scripts do not output results on stdout in a simple and consistent format.
- Sure, it is properly stored in `bmkrun_report.json` (`message.profiles.hepscore.wl-scores`) and uploaded data
- Executing is straightforward and reliable : 
- Payloads are executing a bit faster than HS06 :

Run3WL_A	~3h
Run3WL_B	~3h
Run3WL_C	~3h
Run3WL_Dv2	~6h45
Run3WL_E	~1h30
HS06	~3h45

Metrics gathering and analysis

Publishing to the message bus

- Extensive data structure reported (host configuration, results…).
- An API key might be handier to manage compared to SSL certs (generation process, DN changes, 1 year expiration…).

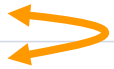
ELK

- Published data is useful to sites : processor powers, memory population…
  → that's a net improvement compared to former Hepix website publication.
- Some new smart graphics recently (TF Measurements, processors distribution…) ! Thank you for that.
- Ability to save searches, vizualizations and dashboards would be a plus.

Kibana usage, some examples

TFM: Benchmark unique count configurations

Processor	# Sites	# SMT configs	# RAM config
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	4	2	3
AMD EPYC 7302 16-Core Processor	3	2	3
Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz	3	1	2
Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz	3	2	1
AMD EPYC 7313 16-Core Processor	2	2	1
AMD EPYC 7702 64-Core Processor	2	2	2
Intel(R) Xeon(R) CPU E5520 @ 2.27GHz	2	2	2
Intel(R) Xeon(R) CPU E5-2630 v3 @ 2.40GHz	2	1	2
Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz	2	3	3
Intel(R) Xeon(R) CPU E5-2680 v4 @ 2.40GHz	2	1	2
Intel(R) Xeon(R) Gold 5118 CPU @ 2.30GHz	2	3	1
Intel(R) Xeon(R) Silver 4210 CPU @ 2.20GHz	2	1	1
Intel(R) Xeon(R) Silver 4216 CPU @ 2.10GHz	2	2	2
AMD EPYC 7351 16-Core Processor	1	1	1
AMD EPYC 7402 24-Core Processor	1	1	1
AMD EPYC 7443 24-Core Processor	1	1	1
AMD EPYC 7443P 24-Core Processor	1	1	1
AMD EPYC 7452 32-Core Processor	1	1	1
AMD EPYC 7453 28-Core Processor	1	1	1



cool, we run those two

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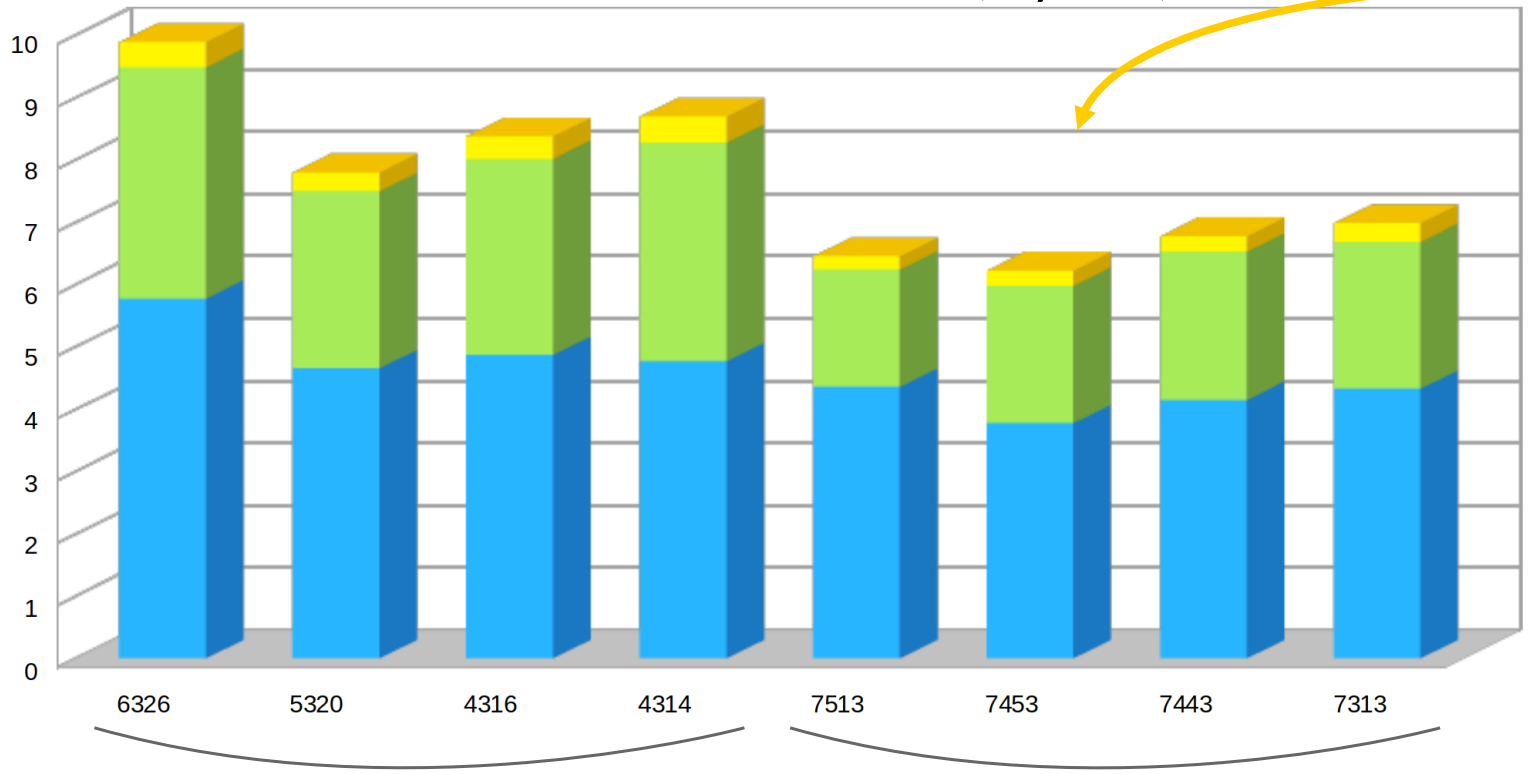
cool, we run those two

But also that Xeon Silver 4114 down there…

Kibana usage, some examples

Processor	Available Cores	Online CPUs	Total RAM GiB	RAM per Available Core	Site	Platform	Count
Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz	40	0-39	125	3.1	IN2P3-SUBATECH	Linux-3.10.0-1160.53.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	1
Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz	40	0-39	125	3.1	CCIPL-SUBATECH	Linux-3.10.0-1160.53.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	9
Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz	32	0-31	62	1.9	PIC	Linux-3.10.0-1160.66.1.el7.x86_64-x86_64-with-centos-7.5.1804-Core	32
Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz	32	0-31	62	1.9	PIC	Linux-3.10.0-1160.62.1.el7.x86_64-x86_64-with-centos-7.5.1804-Core	1
Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz	32	0-31	62	1.9	PIC	Linux-3.10.0-1160.59.1.el7.x86_64-x86_64-with-centos-7.5.1804-Core	64
Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz	32	0-31	62	1.9	PIC	Linux-3.10.0-1160.49.1.el7.x86_64-x86_64-with-centos-7.5.1804-Core	16
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	48	0-47	188	3.9	Nikhef	Linux-3.10.0-1160.62.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	50
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	48	0-47	188	3.9	Nikhef	Linux-3.10.0-1160.42.2.el7.x86_64-x86_64-with-centos-7.9.2009-Core	140
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	48	0-47	141	2.9	CC-IN2P3	Linux-3.10.0-1160.62.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	69
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	48	0-47	141	2.9	CC-IN2P3	Linux-3.10.0-1160.59.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	21
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	48	0-47	251	5.2	CERN	Linux-3.10.0-1160.53.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	48
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	24	0-23	251	10.5	CaltechLIGO	Linux-3.10.0-1160.53.1.el7.x86_64-x86_64-with-redhat-7.9-Nitrogen	1
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz	24	0-23	251	10.5	CERN	Linux-3.10.0-1160.59.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	38
Intel(R) Xeon(R) CPU E5-2660 0 @ 2.20GHz	32	0-31	94	2.9	CA-UVic-Cloud	Linux-3.10.0-862.el7.x86_64-x86_64-with-centos-7.9.2009-Core	285
Intel(R) Xeon(R) CPU E5-2660 0 @ 2.20GHz	32	0-31	94	2.9	CA-UVic-Cloud	Linux-3.10.0-1160.49.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	158
Intel(R) Xeon(R) CPU E5-2660 0 @ 2.20GHz	32	0-31	94	2.9	CA-UVic-Cloud	Linux-3.10.0-1160.45.1.el7.x86_64-x86_64-with-centos-7.9.2009-Core	317
Intel(R) Xeon(R) CPU E5-2665 0 @ 2.40GHz	32	0-31	62	1.9	GridKa	Linux-3.10.0-1160.53.1.el7.x86_64-x86_64-with-redhat-7.9-Nitrogen	37
Intel(R) Xeon(R) CPU E5-2665 0 @ 2.40GHz	32	0-31	62	1.9	GridKa	Linux-3.10.0-1160.45.1.el7.x86_64-x86_64-with-redhat-7.9-Nitrogen	48
Intel(R) Xeon(R) CPU E5-2665 0 @ 2.40GHz	32	0-31	46	1.4	GridKa	Linux-3.10.0-1160.53.1.el7.x86_64-x86_64-with-redhat-7.9-Nitrogen	1

Benchmarking power usage



Intel Xeon
Icelake

AMD EPYC
Milan

2021 electricity tariff !

AMD EPYC 7513 is cheaper as of 37% electricity fee increase…